IN THE CLAIMS

Please amend the claims as follows:

Claims 1-12 (Canceled).

Claim 13 (New): An integrated process for the synthesis of propylene oxide, comprising the following steps:

(a) dehydrogenation of propane to give a substream T (0) comprising propane, propene and hydrogen;

(b) fractionation of the substream T (0) to give at least one gaseous hydrogen-rich substream T (2) and a substream T (1) comprising propene and propane;

(c) fractionation of the substream T (1) to give at least one propane-rich substream T (5) and at least one propene-rich substream T (3);

(d) separation of the substream T (5) into at least the substreams T (5a) and T (5b);

(e) synthesis of hydrogen peroxide using the substream T (2) which is combined with at least the substream T (5a), giving a substream T (4) which is rich in hydrogen peroxide and a gaseous substream T (6a);

(f) at least partial recirculation of the substream T (6a) to step (a);

(g) reaction of the at least one substream T (3) with substream T (4) to give propylene oxide.

Claim 14 (New): The process as claimed in claim 13, wherein the propane-rich substream T (5b) is fed to step (a).

Claim 15 (New): The process as claimed in claim 13, wherein substream T (4) comprises hydrogen peroxide and water.

Claim 16 (New): The process as claimed in claim 13, wherein the reaction in step (g) is the epoxidation of the propene from substream T (3) by means of hydrogen peroxide from substream T (4) in the presence of a catalyst to give propylene oxide.

Claim 17 (New): The process as claimed in claim 13, wherein a substream T (7) comprising propane and/or propene is obtained from step (g) and is wholly or partly recirculated to step (a).

Claim 18 (New): The process as claimed in claim 17, wherein the propane-rich substream T (5b) is fed to step (a), wherein a substream T (7) comprising propane and propene and having a ratio of propane to propene of less than 1 is obtained from step (g) and is, if appropriate after a further work-up step, wholly or partly recirculated to step (c).

Claim 19 (New): The process as claimed in claim 13, wherein a substream T (7) comprising propane and propene and having a ratio of propane to propene of less than 1 is obtained from step (g) and is, if appropriate after a further work-up step, wholly or partly recirculated to step (c).

Claim 20 (New): An integrated process for the synthesis of propylene oxide, comprising the following steps:

(a) dehydrogenation of propane to give a substream T (0) comprising propane, propene and hydrogen;

(b) fractionation of the substream T (0) to give at least one gaseous hydrogen-rich substream T (2) and a substream T (1) comprising propene and propane;

(c) fractionation of the substream T (l) to give at least one propane-rich substream T (5) and at least one propene-rich substream T (3);

(d) separation of the substream T (5) into at least the substreams T (5a) and T (5b);

(e) synthesis of hydrogen peroxide using the substream T (2) which is combined with at least the substream T (5a), giving a substream T (4) which is rich in hydrogen peroxide and a gaseous substream T (6a);

(f) at least partial recirculation of the substream T (6a) to step (a);

(g) reaction of the at least one substream T (3) with substream T (4) to give propylene oxide,

wherein the propane-rich substream T (5b) is fed to step (a) and wherein a substream T (7) comprising propane and/or propene is obtained from step (g) and is wholly or partly recirculated to step (a).

Claim 21 (New): The process as claimed in claim 20, wherein a substream T (7) comprising propane and propene and having a ratio of propane to propene of less than 1 is obtained from step (g) and is, if appropriate after a further work-up step, wholly or partly recirculated to step (c).

Claim 22 (New): The process as claimed in claim 20, wherein substream T (4) comprises hydrogen peroxide and water and wherein the reaction in step (g) is the epoxidation of the propene from substream T (3) by means of hydrogen peroxide from substream T (4) in the presence of a catalyst to give propylene oxide.